



AIR QUALITY SURVEILLANCE BRANCH

ACCEPTANCE TEST PROCEDURE (ATP)

FOR

**RUPPRECHT & PATASHNICK CO., INC.  
PARTISOL-PLUS-MODEL 2025 SEQUENTIAL AIR SAMPLER  
(R & P SEQUENTIAL FRM)**

AQSB ATP 404

First Edition

MONITORING AND LABORATORY DIVISION

**April 2003**

### Approval of Acceptance Test Procedure

Title: Rupprecht & Patashnick Co., Inc. Partisol-Plus Model 2025  
Sequential Air Sampler (R & P Sequential FRM)

ATP: AQSB ATP 404, First Edition

Section: Operation Support Section (OSS)

Branch: Air Quality Surveillance Branch (AQSB)

Division: Monitoring and Laboratory Division (MLD)

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## **1.0 ACCEPTANCE TEST PROCEDURE**

### **1.1 General Information and Acceptance Test Log:**

The Acceptance Test Procedure (ATP) for the Rupprecht & Patashnick (R & P) Model 2025 PM 2.5 Sequential Air Sampler includes all of the steps listed in this procedure.

Before beginning the acceptance test, read the R&P Model 2025 operating manual thoroughly and become familiar with the operation, theory of operation, hardware, software, and basic assembly of the entire unit.

Initiate an Acceptance Test Log and Report (see Appendix A and B) on which you will record the date and a description of any and all assembly steps, tests, malfunctions, repairs, modifications and all other steps taken including any communications with the manufacturer.

### **1.2 Physical Inspection:**

Unpack the instrument, and if already unpacked, inventory all the parts noted on the shipping document. Check for any shipping damage and incorrect or damaged parts or sub-assemblies. Assemble any parts that are necessary for proper operation of the instrument (See operator's manual section 2). Open all access doors and panels and inspect inside for loose parts or improperly mounted or connected sub-assemblies (pump, PC boards, connectors, etc). Check for correct main power cord phasing according to safe electrical code procedures. Make sure that you have all peripheral parts, cables, and connectors installed as per manufacturer's instructions.

### **1.3 Start Up:**

1. Record serial number, model number and date on the Acceptance Test Log.
2. Ensure that all parts are installed including rain hoods and gaskets, temperature sensor and outside sensor enclosure, WINS impactor and impactor well including oil and wick, sampling tube and first stage impactor, a loaded filter magazine, and filter retrieval magazine. See operator's manual, Sections 2, 3.4, and 3.5 for details.

3. Turn on power at the front switch and note pump startup (it should run for 3-5 seconds). Listen for internal cooling fan to ensure that it is operating. Check LCD display to ensure that it is operating properly. Adjust LCD contrast using the contrast knob on the front panel.
4. Begin operational tests as listed below. Refer to the instrument manual sections noted for more details.

#### 1.4 Operational Tests:

1. Perform a cassette retrieval test using removal sleeve and bulb (see operator's manual section 3.4-3.6)
2. Observe display for normal operation (see operator's manual sections 4.2-4.3).
3. Program current (pacific standard) time and date in display (see operator's manual section 4.3).
4. Perform manually activated test of filter exchange mechanism using full magazine (10 filters).
5. Perform system software checks using keypad and display. See operator's manual sections 5 and 7 for more information on navigating the menus and display screens.
6. Disconnect the AC power plug and leave unplugged for approximately 10 minutes, then re-power the instrument (power fail) and check to see if unit powers up properly and screen appears normal (See operator's manual section 5.6).
7. Using external test equipment, check to verify the accuracy of the filter temp sensor vs. display, ambient temp vs. display, outside temp vs. display and ambient pressure vs. display (see operator's manual sections 12.1.1-12.1.4).
8. Perform a complete internal and external system leak check (see operator's manual sections 12.1.5 and 12.1.7).
9. Using a calibrated flow measurement device, perform a system flow check (16.7 LPM) for at least 30 minutes (see operator's manual section 12.1.6).
10. Set up unit for a full 24 hour operational test run (see operator's manual section 5.3.1).

11. After the run is complete, review the run data using the front panel screens (see operator's manual section 8 for more information on the data review screens).
12. Connect the test unit to a PC using 9 to 9 pin cable and initiate control through RS-232 port using RP comm software (see operator's manual section 10).
13. Download "test" run data to PC using "virtual keyboard" and review run data at PC screen. Ensure that there are no differences between the front display and the PC screens (see operator's manual section 10.2.3).
14. Using PC control, initiate various operational procedures to verify full remote operation (see operator's manual section 10.2.6.2).
15. From local control, clear out all unit storage buffers of test run data leaving maximum memory space for future field use (see operator's manual section 13.3).

#### 1.5 Environmental Chamber and Voltage Test:

1. Set unit up in environmental chamber and program to run at least 24 hours at 16.7 LPM.
2. Set up a 30 LPM mass flow meter outside of the chamber. Remove the PM10 head from the inlet tube if present. Connect the flow meter to the sample inlet tube using the calibration adapter.
3. Set up outside chart recorders to monitor chamber temperature and voltage.
4. Connect the mass flow meter to the strip chart recorder. Set up the chart recorder to record flow rate.
5. Set up chamber to run standard temp/voltage profile using the following steps:
  - a. The chamber display should read "auto". If it doesn't consult the environmental chamber procedure for the proper steps.
  - b. Press switch marked "s/s" one time only. Display should read "P-On."
  - c. The chamber will begin running a standard temp/voltage profile.

6. After test run is complete, mark strip charts with pertinent information and include with Acceptance Test Log and other data for review.
7. Clear out all unit storage buffers of test run data leaving maximum memory space for future field use (see operator's manual section 13.3).

1.6 Post-Acceptance Test:

1. Review manufacturers specifications (if supplied), acceptance log, charts and all other reports charts and data, and submit for review.
2. If all data is acceptable, bar code unit and ship to the stock room for field assignment.

APPENDIX A

**ACCEPTANCE TEST REPORT  
RUPPRECHT & PATASHNICK MODEL 2025**

Serial Number:	_____	ARB Bar Code Number	_____
Software Version:	_____	Tested By:	_____
Date Started:	_____	Reviewed By::	_____
Date Completed:	_____	Date:	_____
<u>Pass</u> or <u>Fail</u>	_____		

**Physical Inspection**

**Pass**

**Fail**

- |                                |       |       |
|--------------------------------|-------|-------|
| 1. Unpack and inventory parts  | _____ | _____ |
| 2. Check for shipping damage   | _____ | _____ |
| 3. Unit assembly               | _____ | _____ |
| 4. Check correct power phasing | _____ | _____ |

**Start Up**

- |   |       |       |
|---|-------|-------|
| 1. Record Serial Number and Model Number      | _____ | _____ |
| 2. Service Impactor and Load Filter Cassettes | _____ | _____ |
| 3. Power Up and Boot Sequence                 | _____ | _____ |
| 4. Displays, Lights, Alarms                   | _____ | _____ |

**Operational Tests**

- |                                     |       |       |
|-------------------------------------|-------|-------|
| 1. Cassette Retrieval               | _____ | _____ |
| 2. Observe Display                  | _____ | _____ |
| 3. Program time and date            | _____ | _____ |
| 4. Test filter change mechanism     | _____ | _____ |
| 5. Check system software parameters | _____ | _____ |
| 6. Check power fail circuits        | _____ | _____ |



## APPENDIX A

### ACCEPTANCE TEST REPORT RUPPRECHT & PATASHNICK MODEL 2025

	Pass	Fail
7. Check calibration of temp & pressure sensors	_____	_____
8. Internal Leak Check	_____	_____
9. System leak check	_____	_____
9. Perform system flow check	_____	_____
10. Run 24 hr. operational test	_____	_____
11. Review run data from front panel	_____	_____
12. Test RS-232 port communications	_____	_____
13. Test data download and print	_____	_____
14. Verify RS-232 remote operation	_____	_____
15. Clear storage buffers	_____	_____

#### **Environmental Chamber Test**

1. Set up in chamber at standard flow	_____	_____
2. Run standard temp/volt profile	_____	_____
3. Annotate charts	_____	_____

#### **Post Acceptance Test**

1. Review manufactures specs	_____	_____
2. Complete Acceptance Test Report	_____	_____
3. Submit Acceptance Test Report for review	_____	_____

APPENDIX B

**ACCEPTANCE TEST LOG**

Manufacturer \_\_\_\_\_ Model # \_\_\_\_\_  
S/N \_\_\_\_\_

Date	Action
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
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